

CLAIMS

~~new~~ 1. A process for the preparation of cross-linked polysaccharides containing carboxy groups, comprising:

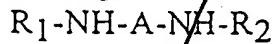
- 5      a) activation of the carboxy groups of the polysaccharide by reaction with suitable carboxy activating groups in anhydrous aprotic solvent;  
      b) reaction of the carboxy activated polysaccharide with a polyamine.

~~new~~ 2. A process according to claim 1, wherein the polysaccharide is selected from Hyaluronic acids (obtained from tissues or bacteria),

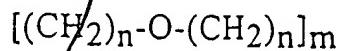
10     carboxymethyldextran, carboxymethylcellulose, carboxymethylstarch, alginic acids, cellulosic acid, N-carboxy-methyl or butyl glucans or chitosans; heparins with different molecular weights, optionally desulphated and succinylated, dermatan sulphates, chondroitin sulphates, heparan sulphates, polyacrylic acids. *not a polysacch! obý*.

15     3. A process according to claim 1 or 2, wherein the carboxy activating agent is selected from carbonyldiimidazole, carbonyltriazole, chloromethylpyridylum iodide (CMP-J), hydroxybenzotriazole, p-nitrophenol p-nitrophenyltrifluoroacetate, N-hydroxysuccinimide.

4. A process according to any one of claims 1 to 3, wherein the  
20     polyamines have the following general formula:



wherein R<sub>1</sub> and R<sub>2</sub>, which are the same or different, are hydrogen, C<sub>1</sub>-C<sub>6</sub> alkyl, phenyl or benzyl groups, A is a C<sub>2</sub>-C<sub>10</sub> alkylene chain, preferably a C<sub>2</sub>-C<sub>6</sub> alkylene chain, optionally substituted by hydroxy, carboxy, halogen,  
25     alkoxy, amino groups; a polyoxyalkylene chain of formula



wherein n is 2 or 3 and m is an integer from 2 to 10; a C<sub>5</sub>-C<sub>7</sub> cycloalkyl group; an aryl or hetaryl group, preferably 1,3 or 1,4-disubstituted benzene.

5. A process according to any one of claims 1 to 4, wherein the

*Sub  
a1*

polysaccharide is salified with lipophilic cations.

→ 6. A process according to claim 5, wherein the lipophilic cation is tributyl or tetralkyl ammonium.

*Sub  
a2*  
5 7. A process according to any one of claims 1 to 6, wherein the cross-linking reaction is carried out in anhydrous dimethylformamide or tetrahydrofuran.

8. A process according to any one of claims 1 to 7, wherein the obtained cross-linked polysaccharide is further subjected to sulfation of the hydroxy groups by reaction with the pyridine/sulfur trioxide complex.

*ref 10* 9. A process according to claim 8, wherein the sulfation reaction is carried out in dimethylformamide in heterogeneous phase at 0-10°C for times from about 0.5 to about 6 hours.

10. A process according to any one of claims 1 to 9, wherein the cross-linked, optionally sulfated polysaccharide, is further subjected to complexation reaction with aqueous solutions of copper, zinc or iron ions.

15 11. Cross-linked polysaccharides obtainable by the process of claims 1 to 10.

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